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REMARKS

In order to emphasize the patentable distinctions of applicant's contribution to the art, claim 16 has been amended to incorporate the features of original claims 21 and 22. Claim 16 now requires that the silane based sizing composition include a hydrophobic moiety and a hydrophilic moiety. The hydrophobic moiety functions to cause the silane based sizing composition to adhere to the glass fibers, while the hydrophilic moiety interacts with water present in a gypsum slurry, from The present invention, as recited by pending claims 16-20, 26-27 and 29, as amended, provides a resistant gypsum board in which glass fiber reinforcements having a silane based sizing composition are bonded to the gypsum matrix. The use of a suitable sizing enhances the strength and improves the flexure and nail pull out resistance. The sizing, typically having a thickness of 10 to 24 microns, is applied over the surface of glass fibers and attaches to the fibers through a hydrophobic moiety contained in the silane-based sizing. The hydrophobic moiety may be selected from the group consisting of amino, methacryl or alkyl functional groups. The sized fiber is introduced into a wet gypsum slurry during manufacture of the gypsum board.

Claim 18 has been amended, for the sake of clarity, to call for a gypsum mix that includes water and at least one member selected from the group consisting of calcium sulphate hemihydrate ($\text{CaSO}_4 \cdot 1/2\text{H}_2\text{O}$), calcium sulphate anhydrite (CaSO_4), and hydraulic setting cement. Claim 19 has been amended to depend from claim 18 instead of claim 16.

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Support for the foregoing amendment is found in the specification, particularly at page 6, lines 21-33; page 7, lines 24-30; and original claims 21 and 22. Consequently, no new matter has been added.

Claims 1-15, 21-25, 28, 31, and 32 stand withdrawn from consideration.

Claims 16-20, 26-27, and 29-30 were rejected under 35 USC 103(a) as being unpatentable over US Patent 4,645,548 to Take et al. in view of US Patent 4,195,110 to Dierks et al. and US Patent 4,741,773 to Kuroda.

Take et al. discloses a process for producing a non-combustible gypsum board, the process being characterized by the preparation of a mixture consisting of a powdery gypsum, a definite amount of fibers and a definite amount of a caking retarder, along with the necessary water. The powdery gypsum in turn consists of 50 to 95 parts by weight of a hydrating gypsum and 5 to 50 parts by weight of gypsum dihydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$).

The Examiner has alleged that Take et al. teaches the claimed gypsum board comprising a gypsum matrix having a top and bottom, wherein the gypsum matrix is said to be of the type contemplated by claims 18 and 19. She has further alleged that Take et al. teaches the addition of glass fibers, but has admitted that there is no specific teaching of silane-coated glass fibers disposed in a non-woven mat. Accordingly, she has combined Dierks et al., which relates to a gypsum board said to have enhanced strength and a construction which eliminates cellulosic cover sheets, whereby the board may be used in environments requiring strict fire protection and good flexural strength. More specifically, there is provided a reinforced gypsum board having two opposite face surfaces terminating in edge surfaces, the board comprising rehydrated stucco and glass fibers, the fibers being

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selectively dispersed within the stucco so as to define reinforced stucco portions under said face surfaces in which said fibers are concentrated, and a core stucco portion disposed between said reinforced portions which is essentially free of said fibers, said reinforced portions having a density of stucco which is substantially greater than that of the stucco of said core portion, whereby said board has enhanced flexural strength.

Applicant respectfully points to the teaching of Dierks et al. to eliminate the conventionally used cellulosic cover sheets in favor of glass mats, a teaching thereby in direct contradiction to dependent claim 17, which calls for just such cellulosic sheets (i.e., kraft paper sheets) as facers. The absence of a surface facer in the Dierks et al. board is also said to be advantageous in not hindering the evaporation of excess water in the drying kiln, thereby reducing processing time (col. 2, lines 65-68). On the other hand, applicant's board is required by base claim 16 to have such surface facers on both top and bottom surfaces. These contradictions are submitted to render the proposed combination improper. [“We have noted elsewhere, as a ‘useful general rule,’ that references that teach away cannot serve to create a prima facie case of obviousness. *McGinley v. Franklin Sports Inc.*, 262 F.3d 1339, 60 USPQ2d 1001, 1010 (Fed. Cir. 2001), quoting *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130 (Fed. Cir. 1994).]

Further recognizing the failure of Dierks et al. to teach silane-coated glass fibers, the Examiner has also cited Kuroda, which provides a water repellent composition that comprises a silicone oil and a substantially non-volatile paraffinic oil or low molecular weight resin.

As now amended, claim 16 calls for the presence of hydrophobic and hydrophilic moieties in the sizing composition. It is respectfully submitted that the combination of

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Take et al., Dierks et al., and Kuroda fails to disclose or suggest any such sizing composition, the functions played in combination by these moieties, or the beneficial improvement in mechanical properties enjoyed by the gypsum board of claim 16. Applicant thus maintains that amended claim 16 is patentable over the combination of Take et al., Dierks et al., and Kuroda. Claims 17-20, 26-27, and 29-30, being dependent from claim 16, are submitted also to be patentable for at least the same reasons.

Accordingly, reconsideration of the rejection of claims 16-20, 26-27, and 29-30 under 35 USC 103(a) as being unpatentable over Take et al. in view of Dierks et al. and Kuroda is respectfully requested.

Furthermore, applicant respectfully submits that claim 16, as now amended, is generic to claims 23-24. These claims, which depend from claim 16, recite preferred hydrophobic and hydrophilic moieties, respectively. Amended claim 16 is also submitted to be generic to claim 25 dependent thereon, rendering them patentable for the same reasons.

Inasmuch as claim 16 is submitted to be patentable over the art of record, claims 23-25 are also submitted to be patentable. Reconsideration of the species election requirement with respect to claims 23-25 and their allowance are respectfully requested.

Claims 16-20, 26-27, and 29 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 22-25, 28, 39-40, and 42 of copending Application Ser. No. 10/913,768 and claims 1-4 and 7-10 of copending Application Ser. No. 10/796,951.

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In order to expedite prosecution of this application, enclosed herewith is a Terminal Disclaimer in the form required by 37 CFR 1.321 (b), disclaiming the terminal part of any patent on the above-identified application which would extend beyond the expiration date of any patent that would issue from copending US Application Serial No. 10/796,951 or copending US Application Serial No. 10/913,768. The Terminal Disclaimer includes a statement by the attorney of record that the evidentiary documents have been reviewed and certifying that, to the best of his knowledge and belief, title is in the Petitioner seeking to take action. As such, the Terminal Disclaimer is submitted to be in compliance with 37 CFR 3.73 (b), and is in the proper form required by 37 CFR 1.321. In view of the same, it is submitted that claims 16-20, 26-27, and 29 should not be subject to rejection based on: provisional obviousness-type double patenting over: claims 22-25, 28, 39-40, and 42 of co-pending US Application Serial No. 10/913,768; or claims 1-4 and 7-10 of copending US Application Serial No. 10/796,951.

Accordingly, reconsideration of the provisional obviousness-type double-patenting rejection of claims 16-20, 26-27, and 29 is respectfully requested.

In view of the amendment of claims 16, 18, and 19, the cancellation of claims 21 and 22, the Terminal Disclaimer submitted herewith, and the foregoing remarks, it is submitted that the present application, as now presented, is in condition for allowance. Accordingly, reconsideration of the restriction requirement and allowance of amended claims 16-20, 26-27, and 29, together with presently withdrawn claims 23-25, are respectfully requested.

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Respectfully submitted,
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